

PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/704,881
Filing Date: November 2, 2000
Applicants: Richard L. Watkins
Group Art Unit: 1772
Examiner: Michael C. Muggins
Title: Process for Improving Interfacial Adhesion in a Laminate
Docket No.: 4022-00007

DECLARATION OF RICHARD L. WATKINS UNDER 37 C.F.R. § 1.132

I, Richard L. Watkins, do hereby say and declare that:

1. I am the inventor of the above-identified U.S. patent application.
2. I have been working in the area of laminate membranes for five years.
3. I have read Wang et al., U.S. Patent No. 6,124,007.

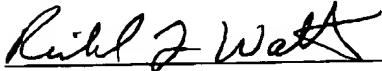
In my opinion, the purpose of the annealing step described in the last paragraph of column 6 is to volumetrically shrink the more elastic, outside balloon to provide mechanical compression on the high modulus, inside balloon. The outside balloon shrinks because it has been oriented.

The Wang patent is concerned with strength of the balloons to withstand bursting and is not concerned with interlaminar adhesion. The Wang patent itself

states in column 6 that the balloons can be easily peeled apart. The Wang patent does not claim to improve peel strength at the interface between the two balloons and certainly does not disclose how to improve peel strength. If a person were to select a combination of balloons of any of the materials that Wang describes, and then place one balloon inside the other and subjected the balloons to Wang's annealing conditions for shrinking the elastic layer, I would expect that typically there would be no change in interlaminar adhesion, and any improvement in interlaminar adhesion would be truly accidental.

My invention achieves significant improvements in interfacial adhesion between the laminate layers by annealing at a temperature that is above a thermal transition temperature of one of the layer materials long enough for that material to diffuse into the other layer. The annealing temperature needed for this diffusion to take place changes when different materials are used in the laminate layers. Thermal transition temperatures of materials depend upon many different factors, including the monomer composition of the polymer, the polymer molecular weight distribution, and the chain ends of the polymer. For the specific materials I selected for my working example on page 27 of my patent application specification, annealing at 140°C for twenty minutes was appropriate. In my opinion, the Wang patent does not provide any specific combination of materials and annealing conditions that would lead to the interlayer diffusion of my invention. Wang also does not provide any guidelines for selecting materials and conditions that could result in inter-diffusion and better interfacial adhesion.

4. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements and the like if made herein would be punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and may jeopardize the validity of the application or any patent issuing therefrom.



Richard L. Watkins



Date